

SEQUENCE LISTING

<110> Dean A. Falb
Katherine Galvin
Michael Donovan
Dennis Huszar
Michael A. Gimbrone, Jr.

<120> Compositions and Methods for the Treatment and Diagnosis of
Cardiovascular Disease

<130> 7853-140-999

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| ccgcaggctt cgggaggcga gggggcgggg ggagcagcgc cgaggycgcc gcctccgcct | 120 |
| ccgccgccta ggactagggg gtgggggacg gacaagcccc g atg ccg ggg gag acg | 176 |
| Met Pro Gly Glu Thr | |
| 1 5 | |

| | |
|---|-----|
| gaa gag ccg aga ccc ccg gag cag cag gac cag gaa ggg gga gag gcg | 224 |
| Glu Glu Pro Arg Pro Pro Glu Gln Gln Asp Gln Glu Gly Gly Glu Ala | |
| 10 15 20 | |

| | |
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| gcc aag gcg gct ccg gag gag ccc caa caa cgg ccc cct gag gcg gtc | 272 |
| Ala Lys Ala Ala Pro Glu Glu Pro Gln Gln Arg Pro Pro Glu Ala Val | |

1006744-020832

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| gcg | gcg | gcg | cct | gca | ggg | acc | act | agc | agc | cg | gtg | ctg | agg | gga | ggt | 320 | | | | |
| Ala | Ala | Ala | Pro | Ala | Gly | Thr | Thr | Ser | Ser | Arg | Val | Leu | Arg | Gly | Gly | | | | | |
| 40 | | | | 45 | | | | 50 | | | | | | | | | | | | |
| cg | gac | cga | ggc | cg | gcc | gct | gcg | gcc | gcc | gcc | gca | gct | gtg | tcc | 368 | | | | | |
| Arg | Asp | Arg | Gly | Arg | Ala | Ala | Ala | Ala | Ala | Ala | Ala | Ala | Val | Ser | | | | | | |
| 55 | | | 60 | | | 65 | | | | | | | | | | | | | | |
| cg | cg | agg | aag | gcc | gag | tat | ccc | cg | cg | cg | agg | agc | agc | ccc | agc | 416 | | | | |
| Arg | Arg | Arg | Lys | Ala | Glu | Tyr | Pro | Arg | Arg | Arg | Arg | Ser | Ser | Pro | Ser | | | | | |
| 70 | | 75 | | 80 | | 85 | | | | | | | | | | | | | | |
| gcc | agg | cct | ccc | gac | gtc | ccc | ggg | cag | cag | ccc | cag | gcc | gcg | aag | tcc | 464 | | | | |
| Ala | Arg | Pro | Pro | Asp | Val | Pro | Gly | Gln | Gln | Pro | Gln | Ala | Ala | Lys | Ser | | | | | |
| 90 | | | | 95 | | | | 100 | | | | | | | | | | | | |
| ccg | tct | cca | gtt | cag | ggc | aag | aag | agt | ccg | cga | ctc | cta | tgc | ata | gaa | 512 | | | | |
| Pro | Ser | Pro | Val | Gln | Gly | Lys | Lys | Ser | Pro | Arg | Leu | Leu | Cys | Ile | Glu | | | | | |
| 105 | | | 110 | | | 115 | | | | | | | | | | | | | | |
| aaa | gta | aca | act | gat | aaa | gat | ccc | aag | gaa | gaa | aaa | gag | gaa | gaa | gac | 560 | | | | |
| Lys | Val | Thr | Thr | Asp | Lys | Asp | Pro | Lys | Glu | Glu | Lys | Glu | Glu | Glu | Asp | | | | | |
| 120 | | | 125 | | | 130 | | | | | | | | | | | | | | |
| gat | tct | gcc | ctc | cct | cag | gaa | gtt | tcc | att | gct | gca | tct | aga | cct | agc | 608 | | | | |
| Asp | Ser | Ala | Leu | Pro | Gln | Glu | Val | Ser | Ile | Ala | Ala | Ser | Arg | Pro | Ser | | | | | |
| 135 | | 140 | | 145 | | | | | | | | | | | | | | | | |
| cg | ggc | tgg | cgt | agt | agt | agg | aca | tct | gtt | tct | cg | cat | cgt | gat | aca | 656 | | | | |
| Arg | Gly | Trp | Arg | Ser | Ser | Arg | Thr | Ser | Val | Ser | Arg | His | Arg | Asp | Thr | | | | | |
| 150 | | 155 | | 160 | | 165 | | | | | | | | | | | | | | |
| gag | aac | acc | cga | agc | tct | cg | tcc | aag | acc | ggt | tca | ttg | cag | ctc | att | 704 | | | | |
| Glu | Asn | Thr | Arg | Ser | Ser | Arg | Ser | Lys | Thr | Gly | Ser | Leu | Gln | Leu | Ile | | | | | |
| 170 | | | 175 | | | 180 | | | | | | | | | | | | | | |
| tgc | aag | tca | gaa | cca | aat | aca | gac | caa | ctt | gat | tat | gat | gtt | gga | gaa | 752 | | | | |
| Cys | Lys | Ser | Glu | Pro | Asn | Thr | Asp | Gln | Leu | Asp | Tyr | Asp | Val | Gly | Glu | | | | | |
| 185 | | | 190 | | | 195 | | | | | | | | | | | | | | |
| gag | cat | cag | tct | cca | ggt | ggc | att | agt | ggt | gaa | gag | gaa | gag | gag | gag | 800 | | | | |
| Glu | His | Gln | Ser | Pro | Gly | Gly | Ile | Ser | Gly | Glu | Glu | Glu | Glu | Glu | Glu | | | | | |
| 200 | | | 205 | | | 210 | | | | | | | | | | | | | | |
| gaa | gaa | gag | atg | tta | atc | agt | gaa | gag | gag | ata | cca | ttc | aaa | gat | gat | 848 | | | | |
| Glu | Glu | Glu | Met | Leu | Ile | Ser | Glu | Glu | Glu | Ile | Pro | Phe | Lys | Asp | Asp | | | | | |
| 215 | | | 220 | | | 225 | | | | | | | | | | | | | | |
| cca | aga | gat | gag | acc | tac | aaa | ccc | cac | tta | gaa | agg | gaa | acc | cca | aag | 896 | | | | |
| Pro | Arg | Asp | Glu | Thr | Tyr | Lys | Pro | His | Leu | Glu | Arg | Glu | Thr | Pro | Lys | | | | | |
| 230 | | 235 | | 240 | | 245 | | | | | | | | | | | | | | |
| cca | cg | aga | aaa | tca | ggg | aag | gta | aaa | gaa | gag | aag | gag | aag | aag | gaa | 944 | | | | |
| Pro | Arg | Arg | Lys | Ser | Gly | Lys | Val | Lys | Glu | Glu | Lys | Glu | Lys | Lys | Glu | | | | | |
| 250 | | | 255 | | | 260 | | | | | | | | | | | | | | |

1006741-020302

| | |
|---|------|
| att aaa gtg gaa gta gag gtg gag gtg aaa gaa gag gag aat gaa att Ile Lys Val Glu Val Glu Val Glu Val Lys Glu Glu Glu Asn Glu Ile 265 270 275 | 992 |
| aga gag gat gag gaa cct cca agg aag aga gga aga aga cga aaa gat Arg Glu Asp Glu Glu Pro Pro Arg Lys Arg Gly Arg Arg Arg Lys Asp 280 285 290 | 1040 |
| gac aaa agt cca cgt tta ccc aaa agg aga aaa aag cct cca atc cag Asp Lys Ser Pro Arg Leu Pro Lys Arg Arg Lys Lys Pro Pro Ile Gln 295 300 305 | 1088 |
| tat gtc cgt tgt gag atg gaa gga tgt gga act gtc ctt gcc cat cct Tyr Val Arg Cys Glu Met Glu Gly Cys Gly Thr Val Leu Ala His Pro 310 315 320 325 | 1136 |
| cgc tat ttg cag cac cac att aaa tac cag cat ttg ctg aag aag aaa Arg Tyr Leu Gln His His Ile Lys Tyr Gln His Leu Leu Lys Lys Lys 330 335 340 | 1184 |
| tat gta tgt ccc cat ccc tcc tgt gga cga ctc ttc agg ctt cag aag Tyr Val Cys Pro His Pro Ser Cys Gly Arg Leu Phe Arg Leu Gln Lys 345 350 355 | 1232 |
| caa ctt ctg cga cat gcc aaa cat cat aca gat caa agg gat tat atc Gln Leu Leu Arg His Ala Lys His His Thr Asp Gln Arg Asp Tyr Ile 360 365 370 | 1280 |
| tgt gaa tat tgt gct cgg gcc ttc aag agt tcc cac aat ctg gca gtg Cys Glu Tyr Cys Ala Arg Ala Phe Lys Ser Ser His Asn Leu Ala Val 375 380 385 | 1328 |
| cac cgg atg att cac act ggc gag aag cca tta caa tgt gag atc tgt His Arg Met Ile His Thr Gly Glu Lys Pro Leu Gln Cys Glu Ile Cys 390 395 400 405 | 1376 |
| gga ttt act tgt cga caa aag gca tct ctt aat tgg cac atg aag aaa Gly Phe Thr Cys Arg Gln Lys Ala Ser Leu Asn Trp His Met Lys Lys 410 415 420 | 1424 |
| cat gat gca gac tcc ttc tac cag ttt tct tgc aat atc tgt ggc aaa His Asp Ala Asp Ser Phe Tyr Gln Phe Ser Cys Asn Ile Cys Gly Lys 425 430 435 | 1472 |
| aaa ttt gag aag aag gac agc gta gtg gca cac aag gca aaa agc cac Lys Phe Glu Lys Lys Asp Ser Val Val Ala His Lys Ala Lys Ser His 440 445 450 | 1520 |
| cct gag gtg ctg att gca gaa gct ctg gct gcc aat gca ggc gcc ctc Pro Glu Val Leu Ile Ala Glu Ala Leu Ala Ala Asn Ala Gly Ala Leu 455 460 465 | 1568 |
| atc acc agc aca gat atc ttg ggc act aac cca gag tcc ctg acg cag Ile Thr Ser Thr Asp Ile Leu Gly Thr Asn Pro Glu Ser Leu Thr Gln 470 475 480 485 | 1616 |
| cct tca gat ggt cag ggt ctt cct ctt ctt cct gag ccc ttg gga aac Pro Ser Asp Gly Gln Gly Leu Pro Leu Leu Pro Glu Pro Leu Gly Asn | 1664 |

203020" T424900T

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| tca acc tct gga gag tgc cta ctg tta gaa gct gaa ggg atg tca aag | | | 1712 |
| Ser Thr Ser Gly Glu Cys Leu Leu Leu Glu Ala Glu Gly Met Ser Lys | | | |
| 505 | 510 | 515 | |
| tca tac tgc agt ggg acg gaa cgg gtg agc ctg atg gct gat ggg aag | | | 1760 |
| Ser Tyr Cys Ser Gly Thr Glu Arg Val Ser Leu Met Ala Asp Gly Lys | | | |
| 520 | 525 | 530 | |
| atc ttt gtg gga agc ggc agc agt gga ggc act gaa ggg ctg gtt atg | | | 1808 |
| Ile Phe Val Gly Ser Gly Ser Ser Gly Gly Thr Glu Gly Leu Val Met | | | |
| 535 | 540 | 545 | |
| aac tca gat ata ctc ggt gct acc aca gag gtt ctg att gaa gat tca | | | 1856 |
| Asn Ser Asp Ile Leu Gly Ala Thr Thr Glu Val Leu Ile Glu Asp Ser | | | |
| 550 | 555 | 560 | 565 |
| gac tct gcc gga cct tagtggacag gaagacttgg ggcattgggac agctcagact | | | 1911 |
| Asp Ser Ala Gly Pro | | | |
| 570 | | | |
| ttgtatttaa aagttaaaaa ggacaaaaaa aaaaaaaaaa aa | | | 1953 |
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| ccccgatcc ccggcgggcg cccccgggcc ccgcgcgcgc ccccggcctc cgggagactg | | | 120 |
| gcgcattgcca cggagcgcgc ctccgggccgc gcgcgcctct gcccgggccc ctgctgctgc | | | 180 |
| tgctgtcgcc tgcgcctgct gcccgaactc ggcgcgcgcac tcacaaagaa acatcatgtt | | | 240 |
| cgctccttag caggcaaacg acttttctcc tcgcctcctc gccccgc atg ttc agg | | | 296 |
| | | Met Phe Arg | |
| | | 1 | |
| acc aaa cga tct gcg ctc gtc cgg cgt ctc tgg agg agc cgt gcg ccc | | | 344 |
| Thr Lys Arg Ser Ala Leu Val Arg Arg Leu Trp Arg Ser Arg Ala Pro | | | |
| 5 | 10 | 15 | |
| ggc ggc gag gac gag gag gag ggc gca ggg gga ggt gga gga gga ggc | | | 392 |
| Gly Gly Glu Asp Glu Glu Glu Gly Ala Gly Gly Gly Gly Gly Gly | | | |
| 20 | 25 | 30 | 35 |
| gag ctg cgg gga gaa ggg gcg acg gac agc cga gcg cat ggg gcc ggt | | | 440 |
| Glu Leu Arg Gly Glu Gly Ala Thr Asp Ser Arg Ala His Gly Ala Gly | | | |
| 40 | 45 | 50 | |
| ggc ggc ggc ccg ggc agg gct gga tgc tgc ctg ggc aag gcg gtg cga | | | 488 |
| Gly Gly Gly Pro Gly Arg Ala Gly Cys Cys Leu Gly Lys Ala Val Arg | | | |
| 55 | 60 | 65 | |

| | |
|---|------|
| ggt gcc aaa ggt cac cac cat ccc cac ccg cca gcc gcg ggc gcc ggc | 536 |
| Gly Ala Lys Gly His His His Pro His Pro Pro Ala Ala Gly Ala Gly | |
| 70 75 80 | |
| gcg gcc ggg ggc gcc gag gcg gat ctg aag gcg ctc acg cac tcg gtg | 584 |
| Ala Ala Gly Gly Ala Glu Ala Asp Leu Lys Ala Leu Thr His Ser Val | |
| 85 90 95 | |
| ctc aag aaa ctg aag gag ccg cag ctg gag ctg ctg ctc cag gcc gtg | 632 |
| Leu Lys Lys Leu Lys Glu Arg Gln Leu Glu Leu Leu Leu Gln Ala Val | |
| 100 105 110 115 | |
| gag tcc cgc ggc ggg acg ccg acc gcg tgc ctc ctg ctg ccc ggc cgc | 680 |
| Glu Ser Arg Gly Gly Thr Arg Thr Ala Cys Leu Leu Leu Pro Gly Arg | |
| 120 125 130 | |
| ctg gac tgc agg ctg ggc ccg ggg gcg ccc gcc ggc gcg cag cct gcg | 728 |
| Leu Asp Cys Arg Leu Gly Pro Gly Ala Pro Ala Gly Ala Gln Pro Ala | |
| 135 140 145 | |
| cag ccg ccc tcg tcc tac tcg ctc ccc ctc ctg ctg tgc aaa gtg ttc | 776 |
| Gln Pro Pro Ser Ser Tyr Ser Leu Pro Leu Leu Leu Cys Lys Val Phe | |
| 150 155 160 | |
| agg tgg ccg gat ctc agg cat tcc tcg gaa gtc aag agg ctg tgt tgc | 824 |
| Arg Trp Pro Asp Leu Arg His Ser Ser Glu Val Lys Arg Leu Cys Cys | |
| 165 170 175 | |
| tgt gaa tct tac ggg aag atc aac ccc gag ctg gtg tgc tgc aac ccc | 872 |
| Cys Glu Ser Tyr Gly Lys Ile Asn Pro Glu Leu Val Cys Cys Asn Pro | |
| 180 185 190 195 | |
| cat cac ctt agc cga ctc tgc gaa cta gag tct ccc ccc cct cct tac | 920 |
| His His Leu Ser Arg Leu Cys Glu Leu Glu Ser Pro Pro Pro Pro Tyr | |
| 200 205 210 | |
| tcc aga tac ccg atg gat ttt ctc aaa cca act gca gac tgt cca gat | 968 |
| Ser Arg Tyr Pro Met Asp Phe Leu Lys Pro Thr Ala Asp Cys Pro Asp | |
| 215 220 225 | |
| gct gtg cct tcc tcc gct gaa aca ggg gga acg aat tat ctg gcc cct | 1016 |
| Ala Val Pro Ser Ser Ala Glu Thr Gly Gly Thr Asn Tyr Leu Ala Pro | |
| 230 235 240 | |
| ggg ggg ctt tca gat tcc caa ctt ctt ctg gag cct ggg gat cgg tca | 1064 |
| Gly Gly Leu Ser Asp Ser Gln Leu Leu Leu Glu Pro Gly Asp Arg Ser | |
| 245 250 255 | |
| cac tgg tgc gtg gtg gca tac tgg gag gag aag acg aga gtg ggg agg | 1112 |
| His Trp Cys Val Val Ala Tyr Trp Glu Glu Lys Thr Arg Val Gly Arg | |
| 260 265 270 275 | |
| ctc tac tgt gtc cag gag ccc tct ctg gat atc ttc tat gat cta cct | 1160 |
| Leu Tyr Cys Val Gln Glu Pro Ser Leu Asp Ile Phe Tyr Asp Leu Pro | |
| 280 285 290 | |
| cag ggg aat ggc ttt tgc ctc gga cag ctc aat tcg gac aac aag agt | 1208 |
| Gln Gly Asn Gly Phe Cys Leu Gly Gln Leu Asn Ser Asp Asn Lys Ser | |

| | | | | | | | | | | | | | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|-----|------------|-------------|------------|-----|-----|-----|-----|-----|-----|------|------|--|
| 295 | | | | | | 300 | | | | | | 305 | | | | | | |
| cag | ctg | gtg | cag | aag | gtg | cgg | agc | aaa | atc | ggc | tgc | ggc | atc | cag | ctg | 1256 | | |
| Gln | Leu | Val | Gln | Lys | Val | Arg | Ser | Lys | Ile | Gly | Cys | Gly | Ile | Gln | Leu | | | |
| 310 | | | | | | 315 | | | | | | 320 | | | | | | |
| acg | cgg | gag | gtg | gat | ggg | gtg | tgg | gtg | tac | aac | cgc | agc | agt | tac | ccc | 1304 | | |
| Thr | Arg | Glu | Val | Asp | Gly | Val | Trp | Val | Tyr | Asn | Arg | Ser | Ser | Tyr | Pro | | | |
| 325 | | | | | | 330 | | | | | | 335 | | | | | | |
| atc | ttc | atc | aag | tcc | gcc | aca | ctg | gac | aac | ccg | gac | tcc | agg | acg | ctg | 1352 | | |
| Ile | Phe | Ile | Lys | Ser | Ala | Thr | Leu | Asp | Asn | Pro | Asp | Ser | Arg | Thr | Leu | | | |
| 340 | | | 345 | | | | | | 350 | | | 355 | | | | | | |
| ttg | gta | cac | aag | gtg | ttc | ccc | ggg | ttc | tcc | atc | aag | gct | ttc | gac | tac | 1400 | | |
| Leu | Val | His | Lys | Val | Phe | Pro | Gly | Phe | Ser | Ile | Lys | Ala | Phe | Asp | Tyr | | | |
| | | | 360 | | | | | | 365 | | | 370 | | | | | | |
| gag | aag | gcg | tac | agc | ctg | cag | cgg | ccc | aat | gac | cac | gag | ttt | atg | cag | 1448 | | |
| Glu | Lys | Ala | Tyr | Ser | Leu | Gln | Arg | Pro | Asn | Asp | His | Glu | Phe | Met | Gln | | | |
| | | | 375 | | | 380 | | | | | | 385 | | | | | | |
| cag | ccg | tgg | acg | ggc | ttt | acc | gtg | cag | atc | agc | ttt | gtg | aag | ggc | tgg | 1496 | | |
| Gln | Pro | Trp | Thr | Gly | Phe | Thr | Val | Gln | Ile | Ser | Phe | Val | Lys | Gly | Trp | | | |
| 390 | | | | | | 395 | | | | | | 400 | | | | | | |
| ggg | cag | tgc | tac | acc | cgc | cag | ttc | atc | agc | agc | tgc | ccg | tgc | tgg | cta | 1544 | | |
| Gly | Gln | Cys | Tyr | Thr | Arg | Gln | Phe | Ile | Ser | Ser | Cys | Pro | Cys | Trp | Leu | | | |
| 405 | | | | | | 410 | | | 415 | | | | | | | | | |
| gag | gtc | atc | ttc | aac | agc | cgg | tagccgcgtg | cggagggggac | agagcgtgag | | | | | | | 1595 | | |
| Glu | Val | Ile | Phe | Asn | Ser | Arg | | | | | | | | | | | | |
| 420 | | | 425 | | | | | | | | | | | | | | | |
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 Met Cys Asn Thr Pro Thr Tyr Cys
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gac cta gga aag gct gct aag gat gtc ttc aac aaa gga tat ggc ttt 161
 Asp Leu Gly Lys Ala Ala Lys Asp Val Phe Asn Lys Gly Tyr Gly Phe
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ggc atg gtc aag ata gac ctg aaa acc aag tct tgt agt gga gtg gaa 209
 Gly Met Val Lys Ile Asp Leu Lys Thr Lys Ser Cys Ser Gly Val Glu
 25 30 35 40

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 Phe Ser Thr Ser Gly His Ala Tyr Thr Asp Thr Gly Lys Ala Ser Gly
 45 50 55

aac cta gaa acc aaa tat aag gtc tgt aac tat gga ctt acc ttc acc 305
 Asn Leu Glu Thr Lys Tyr Lys Val Cys Asn Tyr Gly Leu Thr Phe Thr
 60 65 70

cag aaa tgg aac aca gac aat act cta ggg aca gaa atc tct tgg gag 353
 Gln Lys Trp Asn Thr Asp Asn Thr Leu Gly Thr Glu Ile Ser Trp Glu
 75 80 85

aat aag ttg gct gaa ggg ttg aaa ctg act ctt gat acc ata ttt gta 401
 Asn Lys Leu Ala Glu Gly Leu Lys Leu Thr Leu Asp Thr Ile Phe Val
 90 95 100

ccg aac aca gga aag aag agt ggg aaa ttg aag gcc tcc tat aaa cgg 449
 Pro Asn Thr Gly Lys Lys Ser Gly Lys Leu Lys Ala Ser Tyr Lys Arg
 105 110 115 120

gat tgt ttt agt gtt ggc agt aat gtt gat ata gat ttt tct gga cca 497
 Asp Cys Phe Ser Val Gly Ser Asn Val Asp Ile Asp Phe Ser Gly Pro
 125 130 135

acc atc tat ggc tgg gct gtg ttg gcc ttc gaa ggg tgg ctt gct ggc 545
 Thr Ile Tyr Gly Trp Ala Val Leu Ala Phe Glu Gly Trp Leu Ala Gly
 140 145 150

tat cag atg agt ttt gac aca gcc aaa tcc aaa ctg tca cag aat aat 593
 Tyr Gln Met Ser Phe Asp Thr Ala Lys Ser Lys Leu Ser Gln Asn Asn
 155 160 165

208020"1429007

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ttc gcc ctg ggt tac aag gct gcg gac ttc cag ctg cac aca cat gtg      641
Phe Ala Leu Gly Tyr Lys Ala Ala Asp Phe Gln Leu His Thr His Val
      170                      175                      180

aac gat ggc act gaa ttt gga ggt tct atc tac cag aag gtg aat gag      689
Asn Asp Gly Thr Glu Phe Gly Gly Ser Ile Tyr Gln Lys Val Asn Glu
      185                      190                      195                      200

aag att gaa aca tcc ata aac ctt gct tgg aca gct ggg agt aac aac      737
Lys Ile Glu Thr Ser Ile Asn Leu Ala Trp Thr Ala Gly Ser Asn Asn
                        205                      210                      215

acc cgt ttt ggc att gct gct aag tac atg ctg gat tgt aga act tct      785
Thr Arg Phe Gly Ile Ala Ala Lys Tyr Met Leu Asp Cys Arg Thr Ser
                        220                      225                      230

ctc tct gct aaa gta aat aat gcc agc ctg att gga ctg ggt tat act      833
Leu Ser Ala Lys Val Asn Asn Ala Ser Leu Ile Gly Leu Gly Tyr Thr
                        235                      240                      245

cag acc ctt cga cca gga gtc aaa ttg act tta tca gct tta atc gat      881
Gln Thr Leu Arg Pro Gly Val Lys Leu Thr Leu Ser Ala Leu Ile Asp
                        250                      255                      260

ggg aag aac ttc agt gca gga ggt cac aag gtt ggc ttg gga ttt gaa      929
Gly Lys Asn Phe Ser Ala Gly Gly His Lys Val Gly Leu Gly Phe Glu
      265                      270                      275                      280

ctg gaa gct taatgtggtt tgaggaaaagc atcagatttg tccctggaag      978
Leu Glu Ala

tgaagagaaa tgaaccact atgttttggc cttaaaattc ttctgtgaaa tttcaaaagt    1038
gtgaactttt tattcttcca aagaattgta atcctcccca cactgaagtc taggggttgc    1098
gaatccctcc tgaggagac gcttgaaggc atgcctggaa gttgtcatgt ttgtgccacg    1158
tttcagttca gttctgaagt gttattaaat gtgttcctca gcgacagtgt agcgtcatgt    1218
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tttcatgacc ttgtaataata ctggtctctg tgctatagtg gaatctttgg ttttgcata    1338
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Thr Ser Leu Ala Leu Val Leu Asn Leu Leu Gln Ile Gln Arg Asn Val
      1                      5                      10                      15

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| | |
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| Thr Leu Phe Pro Glu Glu Val Ile Ala Thr Ile Phe Ser Ser Ala Trp | |
| 20 25 30 | |
| tgg gtc cct ccc tgc tgc ggg aca gca gct gct gtt gtt ggc cta ctg | 144 |
| Trp Val Pro Pro Cys Cys Gly Thr Ala Ala Val Val Gly Leu Leu | |
| 35 40 45 | |
| tac ccc tgt atc gac agt cac ctc gga gaa ccc cac aaa ttt aag aga | 192 |
| Tyr Pro Cys Ile Asp Ser His Leu Gly Glu Pro His Lys Phe Lys Arg | |
| 50 55 60 | |
| gaa tgg gcc agt gtc atg cgc tgc ata gca gtt ttt gtt ggc att aac | 240 |
| Glu Trp Ala Ser Val Met Arg Cys Ile Ala Val Phe Val Gly Ile Asn | |
| 65 70 75 80 | |
| cac gcc agt gct aaa ttg gat ttt gcc aat aat gtc cag ctg tcc ttg | 288 |
| His Ala Ser Ala Lys Leu Asp Phe Ala Asn Asn Val Gln Leu Ser Leu | |
| 85 90 95 | |
| act tta gca gcc cta tct ttg ggc ctt tgg tgg aca ttt gat cgt tcc | 336 |
| Thr Leu Ala Ala Leu Ser Leu Gly Leu Trp Trp Thr Phe Asp Arg Ser | |
| 100 105 110 | |
| aga agt ggc ctt ggg ctg ggg atc acc ata gct ttt cta gct acg ctg | 384 |
| Arg Ser Gly Leu Gly Leu Gly Ile Thr Ile Ala Phe Leu Ala Thr Leu | |
| 115 120 125 | |
| atc acg cag ttt ctc gtg tat aat ggt gtc tat cag tat aca tcc cca | 432 |
| Ile Thr Gln Phe Leu Val Tyr Asn Gly Val Tyr Gln Tyr Thr Ser Pro | |
| 130 135 140 | |
| gat ttc ctc tat att cgt tct tgg ctc cct tgt ata ttt ttc tca gga | 480 |
| Asp Phe Leu Tyr Ile Arg Ser Trp Leu Pro Cys Ile Phe Phe Ser Gly | |
| 145 150 155 160 | |
| ggc gtc acg gtg ggg aac ata gga cga cag tta gct atg ggt gtt cct | 528 |
| Gly Val Thr Val Gly Asn Ile Gly Arg Gln Leu Ala Met Gly Val Pro | |
| 165 170 175 | |
| gaa aag ccc cat agt gattgagtct tcaaaaccac cgattctgag agcaaggaag | 583 |
| Glu Lys Pro His Ser | |
| 180 | |
| atatttgaag aaaatctgac tgtggattat gacaaagatt atcttttttc ttaagtaatc | 643 |
| tatttagatc gggctgactg tacaaatgac tcctggaaaa aactcttcac ctagtctaga | 703 |
| atagggaggt ggagaatgat gacttaccct gaagtcttcc cttgactgcc cgcactggcg | 763 |
| cctgtctgtg ccctggagca ttctgcccag gctacgtggg ttcaggcagg tggcagcttc | 823 |
| ccaagtattc gatttcattc atgtgattaa aacaagttgc catattttcaa aaaaaaaaaa | 883 |
| aaaaamctcg agaccaaccc gcagttttgt gtcagtgcc aaaggaggta ggtgatggt | 943 |
| gcttaacaaa catgaagtat ggtgtaatag gaataatatt tatccnaaag atttttaaaa | 1003 |
| atagggctgt gtttaaaaaa aaaaaaaaaa aaa | 1036 |

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 <213> Homo sapiens

<220>

<221> CDS

<222> (1)...(468)

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| Met Cys His Ser Arg Ser Cys His Pro Thr Met Thr Ile Leu Gln Ala | |
| 1 5 10 15 | |
| ccg acc ccg gcc ccc tcc acc atc ccg gga ccc cgg cgg ggc tcc ggt | 96 |
| Pro Thr Pro Ala Pro Ser Thr Ile Pro Gly Pro Arg Arg Gly Ser Gly | |
| 20 25 30 | |
| cct gag atc ttc acc ttc gac cct ctc ccg gag ccc gca gcg gcc cct | 144 |
| Pro Glu Ile Phe Thr Phe Asp Pro Leu Pro Glu Pro Ala Ala Ala Pro | |
| 35 40 45 | |
| gcc ggg cgc ccc agc gcc tct cgc ggg cac cga aag cgc agc cgc agg | 192 |
| Ala Gly Arg Pro Ser Ala Ser Arg Gly His Arg Lys Arg Ser Arg Arg | |
| 50 55 60 | |
| gtt ctc tac cct cga gtg gtc cgg cgc cag ctg cca gtc gag gaa ccg | 240 |
| Val Leu Tyr Pro Arg Val Val Arg Arg Gln Leu Pro Val Glu Glu Pro | |
| 65 70 75 80 | |
| aac cca gcc aaa agg ctt ctc ttt ctg ctg ctc acc atc gtc ttc tgc | 288 |
| Asn Pro Ala Lys Arg Leu Leu Phe Leu Leu Thr Ile Val Phe Cys | |
| 85 90 95 | |
| cag atc ctg atg gct gaa gag ggt gtg ccg gcg ccc ctg cct cca gag | 336 |
| Gln Ile Leu Met Ala Glu Glu Gly Val Pro Ala Pro Leu Pro Pro Glu | |
| 100 105 110 | |
| gac gcc cct aac gcc gca tcc ctg gcg ccc acc cct gtg tcc ccc gtc | 384 |
| Asp Ala Pro Asn Ala Ala Ser Leu Ala Pro Thr Pro Val Ser Pro Val | |
| 115 120 125 | |
| ctc gag ccc ttt aat ctg act tcg gag ccc tcg gac tac gct ctg gac | 432 |
| Leu Glu Pro Phe Asn Leu Thr Ser Glu Pro Ser Asp Tyr Ala Leu Asp | |
| 130 135 140 | |
| ctc agc act ttc ctc cag caa cac ccg gcc gcc ttc taactgtgac | 478 |
| Leu Ser Thr Phe Leu Gln Gln His Pro Ala Ala Phe | |
| 145 150 155 | |
| tccccgcact cccccaaaag aatccgaaaa accacaaaga aacaccaggc gtacctggtg | 538 |
| cgcgagagcg tatccccaac tgggacttcc gagggcaactt gaactcagaa cactacagcg | 598 |
| gagacgccac ccggtgcttg aggcgggacc gaggcgcaca gagaccgagg cgcatagaga | 658 |
| ccgaggcaca gccagctgg ggctaggccc ggtgggaagg agagcgtcgt taatttat | 718 |
| cttattgctc ctaattaata tttatatgta tttatgtacg tcctcctagg tgatggagat | 778 |
| gtgtacgtaa tatttat ttt aacttatgca aggggtgtgag atgttcctc tgctgtaaat | 838 |
| gcaggctctt tggatatttat tgagctttgt gggactgggtg gaagcaggac acctggaact | 898 |
| gcggcaaagt aggagaagaa atggggagga ctcgggtggg ggaggacgtc ccggctggga | 958 |
| tgaagtctgg tgggtgggtcg taagtttagg aggtgactgc atcctccagc atctcaactc | 1018 |
| cgtctgtcta ctgtgtgaga cttcggcgga ccattaggaa tgagatccgt gagatccttc | 1078 |
| catcttcttg aagtcgcctt taggggtggct gcgaggtaga gggttggggg ttggtgggct | 1138 |
| gtcacggagc gactgtcgag atcgcctagt atgttctgtg aacacaaata aaattgattt | 1198 |
| actgtcaaaa aaaaaaaaaa aaaactcgag | 1228 |

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 <212> DNA
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<220>
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 gcccctcttt gggagggggg aaacttggca acccgggagg catgtggatc ttttcctaag 180
 caagatgctg agctggaaag atgggggtgt aaggtaatgt cccaaactga aactttgccca 240
 ggcactggga gaggtgtgta actcttttct ggcttttagaa tttaggtcta gatcccaaaa 300
 ggctaagtac cccctggggg ctaaccagag gcatgcctgg gctgagctga accttctggt 360
 gcactggccc ctggctgact gctcttctgc aggaagttgg aggagattcc tgaagttgat 420
 tcctcaggct ggatgtccaa gggggttgga gtttctgatg tctttctgtc tccctctctt 480
 ttctttctct cctaccagg tccacttctt tcagaggggc ctgctgtgct ctaaaagtgc 540
 tcctgttaaa gtttagagca aattggttat tattttaaaa tcaataaaaac ttttaaaagt 600
 actaagacaa cttctaagag gggagtggac agagggcctg gtggcagctc acagtttctt 660
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 aatatcattc acccatgaaa aagaacgaag tccagcacca aaacgtgcta caacatggat 960
 gaacttcgat gactttgtgc cacatgaaag aagaagccag ccacaaaagg ccatatattg 1020
 tatgaaatga a atg tcc aga atg ggc aaa ccc ata gag aca caa aaa tct 1070
 Met Ser Arg Met Gly Lys Pro Ile Glu Thr Gln Lys Ser
 1 5 10
 ccg cca cct ccc tac tct cgg ctg tct cct cgc gac gag tac aag cca 1118
 Pro Pro Pro Pro Tyr Ser Arg Leu Ser Pro Arg Asp Glu Tyr Lys Pro
 15 20 25
 ctg gat ctg tcc gat tcc aca ttg tct tac act gaa acg gag gct acc 1166
 Leu Asp Leu Ser Asp Ser Thr Leu Ser Tyr Thr Glu Thr Glu Ala Thr
 30 35 40 45
 aac tcc ctc atc act gct ccg ggt gaa ttc tca gac gcc agc atg tct 1214
 Asn Ser Leu Ile Thr Ala Pro Gly Glu Phe Ser Asp Ala Ser Met Ser
 50 55 60
 ccg gac gcc acc aag ccg agc cac tgg tgc agc gtg gcg tac tgg gag 1262
 Pro Asp Ala Thr Lys Pro Ser His Trp Cys Ser Val Ala Tyr Trp Glu
 65 70 75
 cac ccg acg cgc gtg ggc cgc ctc tat gcg gtg tac gac cag gcc gtc 1310
 His Arg Thr Arg Val Gly Arg Leu Tyr Ala Val Tyr Asp Gln Ala Val
 80 85 90
 agc atc ttc tac gac cta cct cag ggc agc ggc ttc tgc ctg ggc cag 1358
 Ser Ile Phe Tyr Asp Leu Pro Gln Gly Ser Gly Phe Cys Leu Gly Gln
 95 100 105
 ctc aac ctg gag cag cgc agc gag tcg gtg cgg cga acg cgc agc aag 1406
 Leu Asn Leu Glu Gln Arg Ser Glu Ser Val Arg Arg Thr Arg Ser Lys
 110 115 120 125

| | |
|---|------|
| atc ggc ttc ggc atc ctg ctc agc aag gag ccc gac ggc gtg tgg gcc | 1454 |
| Ile Gly Phe Gly Ile Leu Leu Ser Lys Glu Pro Asp Gly Val Trp Ala | |
| 130 135 140 | |
| tac aac cgc ggc gag cac ccc atc ttc gtc aac tcc ccg acg ctg gac | 1502 |
| Tyr Asn Arg Gly Glu His Pro Ile Phe Val Asn Ser Pro Thr Leu Asp | |
| 145 150 155 | |
| gcg ccc ggc ggc cgc gcc ctg gtc gtg cgc aag gtg ccc ccc ggc tac | 1550 |
| Ala Pro Gly Gly Arg Ala Leu Val Val Arg Lys Val Pro Pro Gly Tyr | |
| 160 165 170 | |
| tcc atc aag gtg ttc gac ttc gag cgc tcg ggc ctg cag cac gcg ccc | 1598 |
| Ser Ile Lys Val Phe Asp Phe Glu Arg Ser Gly Leu Gln His Ala Pro | |
| 175 180 185 | |
| gag ccc gac gcc gcc gac ggc ccc tac gac ccc aac agc gtc cgc atc | 1646 |
| Glu Pro Asp Ala Ala Asp Gly Pro Tyr Asp Pro Asn Ser Val Arg Ile | |
| 190 195 200 205 | |
| agc ttc gcc aag ggc tgg ggg ccc tgc tac tcc cgg cag ttc atc acc | 1694 |
| Ser Phe Ala Lys Gly Trp Gly Pro Cys Tyr Ser Arg Gln Phe Ile Thr | |
| 210 215 220 | |
| tcc tgc ccc tgc tgg ctg gag atc ctc ctc aac aac ccc aga | 1736 |
| Ser Cys Pro Cys Trp Leu Glu Ile Leu Leu Asn Asn Pro Arg | |
| 225 230 235 | |
| tagtggcggc cccggcgga gggcggggtg ggaggccgcg gccaccgcca cctgccggcc | 1796 |
| tcgagagggg ccgatgccca gagacacagc cccacaggac aaaaccccc agatatcatc | 1856 |
| tacctagatt taatataaag ttttatatat tatatggaaa tatatattat acttgtaatt | 1916 |
| atggagtcatt tttacaatg taattattta tgtatggtgc aatgtgtgta tatggacaaa | 1976 |
| acaagaaaga cgcacttttg cttataattc tttcaataca gatataattt ctttctcttc | 2036 |
| ctccttcttc ttccttactt tttatatata tatataaaga aaatgataca gcagagctag | 2096 |
| gtggaaaagc ctgggttttg tgtatggttt ttgagatatt aatgcccaga caaaaagcta | 2156 |
| ataccagtcga ctcgataata aagtattcgc attatagttt tttttaaaact gtcttctttt | 2216 |
| tacaaagagg ggcaggtagg gcttcagcgg atttctgacc catcatgtac cttgaaactt | 2276 |
| gacctcagtt ttcaagtttt acttttattg gataaagaca gaacaaattg aaaagggagg | 2336 |
| aaagtcacat ttactcttaa gtaaacccaga gaaagttctg ttgttccttc ctgcccattg | 2396 |
| ctatgggggtg tccagtggat agggatggcg gtggggaaaa ggagaataca ctggccattt | 2456 |
| atcctggaca agctcttcca gtctgatgga ggaggttcat gccctagcct agaaaggccc | 2516 |
| aggtccatga ccccatctt tgagttatga gcaagctaaa agaagacact atttctcacc | 2576 |
| atthttgtga aatggcctgg ggaacaaaga ctgaaatggg ccttgagccc acctgctacc | 2636 |
| ttgcagagaa ccatctcgag ccccgtagat ctttttagga cctccacagg statttccca | 2696 |
| ccccccagcc aaaaatagct cagaatctgc ccatccaggg cttgtattaa tgatttatgt | 2756 |
| aaaggcagat ggtttatttc tactttgtaa aagggaagaa ttgaggttct ggaaggataa | 2816 |
| atgatttgct catgagacaa aatcaagggtt agaagttaca tggaattgta ggaccagagc | 2876 |
| catatcatta gatcagcttt ctgaagaata ttctccamaa aagaaagtct ccttggccag | 2936 |
| ataactaaga ggaatgtttc attgtatatc ttttttcttg gagatttata ttaacatatt | 2996 |
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| aaaaaaaaa aaaaaaaaaa aactcgag | 3084 |

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<211> 570

<212> PRT

<213> Homo sapiens

<400> 7
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Pro Pro Glu Ala Val Ala Ala Ala Pro Ala Gly Thr Thr Ser Ser Arg
35 40 45
Val Leu Arg Gly Gly Arg Asp Arg Gly Arg Ala Ala Ala Ala Ala
50 55 60
Ala Ala Ala Val Ser Arg Arg Arg Lys Ala Glu Tyr Pro Arg Arg Arg
65 70 75 80
Arg Ser Ser Pro Ser Ala Arg Pro Pro Asp Val Pro Gly Gln Gln Pro
85 90 95
Gln Ala Ala Lys Ser Pro Ser Pro Val Gln Gly Lys Lys Ser Pro Arg
100 105 110
Leu Leu Cys Ile Glu Lys Val Thr Thr Asp Lys Asp Pro Lys Glu Glu
115 120 125
Lys Glu Glu Glu Asp Asp Ser Ala Leu Pro Gln Glu Val Ser Ile Ala
130 135 140
Ala Ser Arg Pro Ser Arg Gly Trp Arg Ser Ser Arg Thr Ser Val Ser
145 150 155 160
Arg His Arg Asp Thr Glu Asn Thr Arg Ser Ser Arg Ser Lys Thr Gly
165 170 175
Ser Leu Gln Leu Ile Cys Lys Ser Glu Pro Asn Thr Asp Gln Leu Asp
180 185 190
Tyr Asp Val Gly Glu Glu His Gln Ser Pro Gly Gly Ile Ser Gly Glu
195 200 205
Glu Glu Glu Glu Glu Glu Glu Glu Met Leu Ile Ser Glu Glu Glu Ile
210 215 220
Pro Phe Lys Asp Asp Pro Arg Asp Glu Thr Tyr Lys Pro His Leu Glu
225 230 235 240
Arg Glu Thr Pro Lys Pro Arg Arg Lys Ser Gly Lys Val Lys Glu Glu
245 250 255
Lys Glu Lys Lys Glu Ile Lys Val Glu Val Glu Val Lys Glu
260 265 270
Glu Glu Asn Glu Ile Arg Glu Asp Glu Glu Pro Pro Arg Lys Arg Gly
275 280 285
Arg Arg Arg Lys Asp Asp Lys Ser Pro Arg Leu Pro Lys Arg Arg Lys
290 295 300
Lys Pro Pro Ile Gln Tyr Val Arg Cys Glu Met Glu Gly Cys Gly Thr
305 310 315 320
Val Leu Ala His Pro Arg Tyr Leu Gln His His Ile Lys Tyr Gln His
325 330 335
Leu Leu Lys Lys Lys Tyr Val Cys Pro His Pro Ser Cys Gly Arg Leu
340 345 350
Phe Arg Leu Gln Lys Gln Leu Leu Arg His Ala Lys His His Thr Asp
355 360 365
Gln Arg Asp Tyr Ile Cys Glu Tyr Cys Ala Arg Ala Phe Lys Ser Ser
370 375 380
His Asn Leu Ala Val His Arg Met Ile His Thr Gly Glu Lys Pro Leu
385 390 395 400
Gln Cys Glu Ile Cys Gly Phe Thr Cys Arg Gln Lys Ala Ser Leu Asn
405 410 415
Trp His Met Lys Lys His Asp Ala Asp Ser Phe Tyr Gln Phe Ser Cys
420 425 430
Asn Ile Cys Gly Lys Lys Phe Glu Lys Lys Asp Ser Val Val Ala His
435 440 445
Lys Ala Lys Ser His Pro Glu Val Leu Ile Ala Glu Ala Leu Ala Ala

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 450 | Asn | Ala | Gly | Ala | Leu | Ile | Thr | Ser | Thr | Asp | Ile | Leu | Gly | Thr | Asn | Pro |
| 465 | Glu | Ser | Leu | Thr | Gln | Pro | Ser | Asp | Gly | Gln | Gly | Leu | Pro | Leu | Leu | Pro |
| | | | | 485 | Asn | Ser | Thr | Ser | Gly | Glu | Cys | Leu | Leu | Leu | Glu | Ala |
| | | | 500 | | | | | | 505 | | | | | 510 | | |
| | Glu | Gly | Met | Ser | Lys | Ser | Tyr | Cys | Ser | Gly | Thr | Glu | Arg | Val | Ser | Leu |
| | | | 515 | | | | | 520 | | | | | 525 | | | |
| | Met | Ala | Asp | Gly | Lys | Ile | Phe | Val | Gly | Ser | Gly | Ser | Ser | Gly | Gly | Thr |
| | | | 530 | | | | 535 | | | | | | 540 | | | |
| | Glu | Gly | Leu | Val | Met | Asn | Ser | Asp | Ile | Leu | Gly | Ala | Thr | Thr | Glu | Val |
| 545 | | | | | | 550 | | | | | 555 | | | | | 560 |
| | Leu | Ile | Glu | Asp | Ser | Asp | Ser | Ala | Gly | Pro | | | | | | |
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<210> 8
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| | | | | | | | | | | | | | | | | |
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| | Arg | Ala | Pro | Gly | Glu | Asp | Glu | Glu | Gly | Ala | Gly | Gly | Gly | Gly | Gly | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| | Gly | Gly | Gly | Glu | Leu | Arg | Gly | Glu | Gly | Ala | Thr | Asp | Ser | Arg | Ala | His |
| | | | 35 | | | | 40 | | | | | 45 | | | | |
| | Gly | Ala | Gly | Gly | Gly | Gly | Pro | Gly | Arg | Ala | Gly | Cys | Cys | Leu | Gly | Lys |
| | | | 50 | | | 55 | | | | | | 60 | | | | |
| | Ala | Val | Arg | Gly | Ala | Lys | Gly | His | His | His | Pro | His | Pro | Pro | Ala | Ala |
| 65 | | | | | 70 | | | | | 75 | | | | | | 80 |
| | Gly | Ala | Gly | Ala | Ala | Gly | Gly | Ala | Glu | Ala | Asp | Leu | Lys | Ala | Leu | Thr |
| | | | 85 | | | | | | 90 | | | | | 95 | | |
| | His | Ser | Val | Leu | Lys | Lys | Leu | Lys | Glu | Arg | Gln | Leu | Glu | Leu | Leu | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| | Gln | Ala | Val | Glu | Ser | Arg | Gly | Gly | Thr | Arg | Thr | Ala | Cys | Leu | Leu | Leu |
| | | | 115 | | | | 120 | | | | | 125 | | | | |
| | Pro | Gly | Arg | Leu | Asp | Cys | Arg | Leu | Gly | Pro | Gly | Ala | Pro | Ala | Gly | Ala |
| | | | 130 | | | | 135 | | | | | 140 | | | | |
| | Gln | Pro | Ala | Gln | Pro | Pro | Ser | Ser | Tyr | Ser | Leu | Pro | Leu | Leu | Leu | Cys |
| 145 | | | | | 150 | | | | | 155 | | | | | | 160 |
| | Lys | Val | Phe | Arg | Trp | Pro | Asp | Leu | Arg | His | Ser | Ser | Glu | Val | Lys | Arg |
| | | | 165 | | | | | | 170 | | | | | | 175 | |
| | Leu | Cys | Cys | Cys | Glu | Ser | Tyr | Gly | Lys | Ile | Asn | Pro | Glu | Leu | Val | Cys |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| | Cys | Asn | Pro | His | His | Leu | Ser | Arg | Leu | Cys | Glu | Leu | Glu | Ser | Pro | Pro |
| | | | 195 | | | | 200 | | | | | 205 | | | | |
| | Pro | Pro | Tyr | Ser | Arg | Tyr | Pro | Met | Asp | Phe | Leu | Lys | Pro | Thr | Ala | Asp |
| | | | 210 | | | | 215 | | | | | 220 | | | | |
| | Cys | Pro | Asp | Ala | Val | Pro | Ser | Ser | Ala | Glu | Thr | Gly | Gly | Thr | Asn | Tyr |
| 225 | | | | | 230 | | | | | 235 | | | | | | 240 |
| | Leu | Ala | Pro | Gly | Gly | Leu | Ser | Asp | Ser | Gln | Leu | Leu | Leu | Glu | Pro | Gly |
| | | | 245 | | | | | | | 250 | | | | | 255 | |
| | Asp | Arg | Ser | His | Trp | Cys | Val | Val | Ala | Tyr | Trp | Glu | Glu | Lys | Thr | Arg |
| | | | 260 | | | | | 265 | | | | | | 270 | | |
| | Val | Gly | Arg | Leu | Tyr | Cys | Val | Gln | Glu | Pro | Ser | Leu | Asp | Ile | Phe | Tyr |
| | | | 275 | | | | | 280 | | | | | 285 | | | |

Asp Leu Pro Gln Gly Asn Gly Phe Cys Leu Gly Gln Leu Asn Ser Asp
 290 295 300
 Asn Lys Ser Gln Leu Val Gln Lys Val Arg Ser Lys Ile Gly Cys Gly
 305 310 315 320
 Ile Gln Leu Thr Arg Glu Val Asp Gly Val Trp Val Tyr Asn Arg Ser
 325 330 335
 Ser Tyr Pro Ile Phe Ile Lys Ser Ala Thr Leu Asp Asn Pro Asp Ser
 340 345 350
 Arg Thr Leu Leu Val His Lys Val Phe Pro Gly Phe Ser Ile Lys Ala
 355 360 365
 Phe Asp Tyr Glu Lys Ala Tyr Ser Leu Gln Arg Pro Asn Asp His Glu
 370 375 380
 Phe Met Gln Gln Pro Trp Thr Gly Phe Thr Val Gln Ile Ser Phe Val
 385 390 395 400
 Lys Gly Trp Gly Gln Cys Tyr Thr Arg Gln Phe Ile Ser Ser Cys Pro
 405 410 415
 Cys Trp Leu Glu Val Ile Phe Asn Ser Arg
 420 425

<210> 9
 <211> 283
 <212> PRT
 <213> Homo sapiens

<400> 9
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 1 5 10 15
 Val Phe Asn Lys Gly Tyr Gly Phe Gly Met Val Lys Ile Asp Leu Lys
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 Thr Lys Ser Cys Ser Gly Val Glu Phe Ser Thr Ser Gly His Ala Tyr
 35 40 45
 Thr Asp Thr Gly Lys Ala Ser Gly Asn Leu Glu Thr Lys Tyr Lys Val
 50 55 60
 Cys Asn Tyr Gly Leu Thr Phe Thr Gln Lys Trp Asn Thr Asp Asn Thr
 65 70 75 80
 Leu Gly Thr Glu Ile Ser Trp Glu Asn Lys Leu Ala Glu Gly Leu Lys
 85 90 95
 Leu Thr Leu Asp Thr Ile Phe Val Pro Asn Thr Gly Lys Lys Ser Gly
 100 105 110
 Lys Leu Lys Ala Ser Tyr Lys Arg Asp Cys Phe Ser Val Gly Ser Asn
 115 120 125
 Val Asp Ile Asp Phe Ser Gly Pro Thr Ile Tyr Gly Trp Ala Val Leu
 130 135 140
 Ala Phe Glu Gly Trp Leu Ala Gly Tyr Gln Met Ser Phe Asp Thr Ala
 145 150 155 160
 Lys Ser Lys Leu Ser Gln Asn Asn Phe Ala Leu Gly Tyr Lys Ala Ala
 165 170 175
 Asp Phe Gln Leu His Thr His Val Asn Asp Gly Thr Glu Phe Gly Gly
 180 185 190
 Ser Ile Tyr Gln Lys Val Asn Glu Lys Ile Glu Thr Ser Ile Asn Leu
 195 200 205
 Ala Trp Thr Ala Gly Ser Asn Asn Thr Arg Phe Gly Ile Ala Ala Lys
 210 215 220
 Tyr Met Leu Asp Cys Arg Thr Ser Leu Ser Ala Lys Val Asn Asn Ala
 225 230 235 240
 Ser Leu Ile Gly Leu Gly Tyr Thr Gln Thr Leu Arg Pro Gly Val Lys
 245 250 255
 Leu Thr Leu Ser Ala Leu Ile Asp Gly Lys Asn Phe Ser Ala Gly Gly

130 135 140
 Leu Ser Thr Phe Leu Gln Gln His Pro Ala Ala Phe
 145 150 155

<210> 12
 <211> 235
 <212> PRT
 <213> Homo sapiens

<400> 12
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 Pro Tyr Ser Arg Leu Ser Pro Arg Asp Glu Tyr Lys Pro Leu Asp Leu
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 Ser Asp Ser Thr Leu Ser Tyr Thr Glu Ala Thr Asn Ser Leu
 35 40 45
 Ile Thr Ala Pro Gly Glu Phe Ser Asp Ala Ser Met Ser Pro Asp Ala
 50 55 60
 Thr Lys Pro Ser His Trp Cys Ser Val Ala Tyr Trp Glu His Arg Thr
 65 70 75 80
 Arg Val Gly Arg Leu Tyr Ala Val Tyr Asp Gln Ala Val Ser Ile Phe
 85 90 95
 Tyr Asp Leu Pro Gln Gly Ser Gly Phe Cys Leu Gly Gln Leu Asn Leu
 100 105 110
 Glu Gln Arg Ser Glu Ser Val Arg Thr Arg Ser Lys Ile Gly Phe
 115 120 125
 Gly Ile Leu Leu Ser Lys Glu Pro Asp Gly Val Trp Ala Tyr Asn Arg
 130 135 140
 Gly Glu His Pro Ile Phe Val Asn Ser Pro Thr Leu Asp Ala Pro Gly
 145 150 155 160
 Gly Arg Ala Leu Val Val Arg Lys Val Pro Pro Gly Tyr Ser Ile Lys
 165 170 175
 Val Phe Asp Phe Glu Arg Ser Gly Leu Gln His Ala Pro Glu Pro Asp
 180 185 190
 Ala Ala Asp Gly Pro Tyr Asp Pro Asn Ser Val Arg Ile Ser Phe Ala
 195 200 205
 Lys Gly Trp Gly Pro Cys Tyr Ser Arg Gln Phe Ile Thr Ser Cys Pro
 210 215 220
 Cys Trp Leu Glu Ile Leu Leu Asn Asn Pro Arg
 225 230 235

<210> 13
 <211> 12
 <212> DNA
 <213> Homo sapiens

<400> 13
 tttttttttt tc

12

<210> 14
 <211> 10
 <212> DNA
 <213> Homo sapiens

<400> 14
 gtgaggcgtc

10

<210> 15

| | |
|---------------------------|----|
| <211> 10 | |
| <212> DNA | |
| <213> Homo sapiens | |
| <400> 15 | |
| tggaccggtg | 10 |
| <210> 16 | |
| <211> 12 | |
| <212> DNA | |
| <213> Homo sapiens | |
| <400> 16 | |
| tttttttttt ta | 12 |
| <210> 17 | |
| <211> 10 | |
| <212> DNA | |
| <213> Homo sapiens | |
| <400> 17 | |
| agacgtccac | 10 |
| <210> 18 | |
| <211> 10 | |
| <212> DNA | |
| <213> Homo sapiens | |
| <400> 18 | |
| acttcgccac | 10 |
| <210> 19 | |
| <211> 10 | |
| <212> DNA | |
| <213> Homo sapiens | |
| <400> 19 | |
| tcggacgtga | 10 |
| <210> 20 | |
| <211> 17 | |
| <212> DNA | |
| <213> Homo sapiens | |
| <400> 20 | |
| catttcattt catacaa | 17 |
| <210> 21 | |
| <211> 23 | |
| <212> DNA | |
| <213> Homo sapiens | |
| <400> 21 | |
| catttcattt catacaatat atg | 23 |
| <210> 22 | |
| <211> 29 | |
| <212> DNA | |

<213> Homo sapiens

<400> 22
cattttcattt catacaatat atggccttt 29

<210> 23
<211> 35
<212> DNA
<213> Homo sapiens

<400> 23
cattttcattt catacaatat atggcctttt gtggc 35

<210> 24
<211> 35
<212> DNA
<213> Homo sapiens

<400> 24
ggacatttca tttcatacaa tatatggcct tttgt 35

<210> 25
<211> 29
<212> DNA
<213> Homo sapiens

<400> 25
ttcatttcat acaatatatg gccttttgt 29

<210> 26
<211> 23
<212> DNA
<213> Homo sapiens

<400> 26
tcatacaata tatggccttt tgt 23

<210> 27
<211> 17
<212> DNA
<213> Homo sapiens

<400> 27
aatatatggc cttttgt 17

<210> 28
<211> 17
<212> DNA
<213> Homo sapiens

<400> 28
catgcggggc gaggagg 17

<210> 29
<211> 23
<212> DNA
<213> Homo sapiens

<400> 29 23
 catgcggggc gaggaggcga gga

 <210> 30
 <211> 29
 <212> DNA
 <213> Homo sapiens

 <400> 30 29
 catgcggggc gaggaggcga ggagaaaag

 <210> 31
 <211> 35
 <212> DNA
 <213> Homo sapiens

 <400> 31 35
 catgcggggc gaggaggcga ggagaaaagt cgttt

 <210> 32
 <211> 35
 <212> DNA
 <213> Homo sapiens

 <400> 32 35
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 <210> 33
 <211> 29
 <212> DNA
 <213> Homo sapiens

 <400> 33 29
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 <210> 34
 <211> 23
 <212> DNA
 <213> Homo sapiens

 <400> 34 23
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 <210> 35
 <211> 17
 <212> DNA
 <213> Homo sapiens

 <400> 35 17
 ggcgaggaga aaagtcg

 <210> 36
 <211> 20
 <212> DNA
 <213> Homo sapiens

 <220>
 <221> misc_feature

<222> (1)...(20)
 <223> n = A,T,C or G

 <400> 36
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 <210> 37
 <211> 69
 <212> DNA
 <213> Homo sapiens

 <220>
 <221> misc_feature
 <222> (1)...(69)
 <223> n = A,T,C or G

 <400> 37
 gguggagccc cagggcauua ccucaaagcn gnnncngagna gucgugggca aggugggcac 60
 ucagguggg 69

 <210> 38
 <211> 60
 <212> DNA
 <213> Homo sapiens

 <220>
 <221> misc_feature
 <222> (1)...(60)
 <223> n = A,T,C or G

 <400> 38
 gugucucuau ggguuugccc aaagcngnnc ngagnagucu cuggacauuu cauucacauac 60

 <210> 39
 <211> 76
 <212> DNA
 <213> Homo sapiens

 <220>
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 <222> (1)...(76)
 <223> n = A,T,C or G

 <400> 39
 ggcccucucg ccgucgggcu ccuugcugag caaagcngnn cngagnaguc gaugccgaag 60
 ccgaucuugc ugcgcg 76

 <210> 40
 <211> 68
 <212> DNA
 <213> Homo sapiens

 <220>
 <221> misc_feature
 <222> (1)...(68)
 <223> n = A,T,C or G

 <400> 40

cguuugccug cuaaggagcg aacaaagcng nncngagnag ucgauguuuc uuugugaguc 60
gggcgcgcg 68

<210> 41
<211> 80
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(80)
<223> n = A,T,C or G

<400> 41
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ggaggcgagg agaaaagucg 80

<210> 42
<211> 84
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(84)
<223> n = A,T,C or G

<400> 42
ggaguaagga ggggggggag acucuaguuc gcaaagcngn ncngagnagu cagucggcua 60
aggugauggg gguugcagca cacc 84

<210> 43
<211> 16
<212> PRT
<213> Homo sapiens

<400> 43
Tyr Thr Asp Thr Gly Lys Ala Ser Gly Asn Leu Glu Thr Lys Tyr Lys
1 5 10 15

<210> 44
<211> 15
<212> PRT
<213> Homo sapiens

<400> 44
Thr Gly Lys Lys Ser Gly Lys Leu Lys Ala Ser Tyr Lys Arg Asp
1 5 10 15

<210> 45
<211> 1817
<212> DNA
<213> Homo sapiens

<400> 45
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ctgcgacccg cgcagccggc gcctcgctga gggaacggac ccccggtaac cggagaccgc 120
cttccccccc acccctggcg ccaaaggata tcgtatgttc aggtccaaac gctcggggct 180

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gatcctcttc aacaacccca gatagtggcg gccccggcgg gagggggcgg tgggaggccg 1680
cggccaccgc cacctgccgg cctcgagagg ggccgatgcc cagagacaca gccccacgg 1740
acaaaacccc ccagatatca tctacctaga tttaatataa agttttatat attatatgga 1800
aaaaaaaaaa aaaaaaaa 1817

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<210> 46
 <211> 496
 <212> PRT
 <213> Homo sapiens

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<400> 46
Met Phe Arg Ser Lys Arg Ser Gly Leu Val Arg Arg Leu Trp Arg Ser
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Arg Val Val Pro Asp Arg Glu Glu Gly Gly Ser Gly Gly Gly Gly Gly
 20            25            30
Gly Asp Glu Asp Gly Ser Leu Gly Ser Arg Ala Glu Pro Ala Pro Arg
 35            40            45
Ala Arg Glu Gly Gly Gly Cys Gly Arg Ser Glu Val Arg Pro Val Ala
 50            55            60
Pro Arg Arg Pro Arg Asp Ala Val Gly Gln Arg Gly Ala Gln Gly Ala
 65            70            75            80
Gly Arg Arg Arg Arg Ala Gly Gly Pro Pro Arg Pro Met Ser Glu Pro
 85            90            95
Gly Ala Gly Ala Gly Ser Ser Leu Leu Asp Val Ala Glu Pro Gly Gly
100            105            110
Pro Gly Trp Leu Pro Glu Ser Asp Cys Glu Thr Val Thr Cys Cys Leu
115            120            125
Phe Ser Glu Arg Asp Ala Ala Gly Ala Pro Arg Asp Ala Ser Asp Pro
130            135            140
Leu Ala Gly Ala Ala Leu Glu Pro Ala Gly Gly Gly Arg Ser Arg Glu
145            150            155            160
Ala Arg Ser Arg Leu Leu Leu Leu Glu Gln Glu Leu Lys Thr Val Thr
165            170            175
Tyr Ser Leu Leu Lys Arg Leu Lys Glu Arg Ser Leu Asp Thr Leu Leu

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